LA FAYETTE EXHIBIT INCLUDES CHASSIS

Mechanism of Car Revealed for Inspection of the Show Visitors.

Because the La Fayette was the first motor car to be designed from radiator to rear axle following the war, embodying practices developed during the war, and because it was designed by D. McCall White, whose engineering ability is generally recognized, interest in the car is centred in the mechanical construction.

Means of closely studying the advanced engineering ideas of this car are well afforded in the La Fayette exhibit on the third floor of the Grand Central Palace in a chassis of polished and burnished metal, similar to a European chassis of Mr. White's which was voted the best at one of London's Olympia shows. Although the La Fayette was introduced in New York a year ago, this is the first time a chassis has been presented to the public.

The entire chassis weighs only 2,575 pounds, although its apparent strength gives the impression of greater weight. The 90-horse power, eight cylinder engine is not radical in design. The cylinder blocks are set at an angle of 90 degrees, which has proved most reliable and advantageous for eight cylinder construction. Engineering skill is to be found in the wholesale simplification and reduction of weight without loss of strength or reliability. For example, the hollow crankshaft, weighing only 30½ pounds, inherently has less "whip" than the conventional heavier type, and is held in five main bearings instead of the orthodox three, thereby distributing the wear over a much greater bearing surface and increasing the life of the engine.

Like the crankshaft, the camshaft is a hollowed drop forging with sixteen integral cams and five cast iron bearings, to insure alignment, rigidity and precise valve action. The idea of extra large bearing surfaces and low bearing pressure is carried throughout the chassis in the interest of longer life.

The manufacturing equipment of the La Fayette factory is said to resemble that used to produce Liberty engines. The connecting rods, for example, are machined all over and carefully balanced. In fact, the balance is carried even to the 2½ ounce wrist pins, which are individually tested on a balancing scale. Not only are the pistons machined to the closest possible limits, but after that they are selected for each engine.

The cooling system is unique in several important respects. A single pump of dual action type, patented by La Fayette, forces water to the centre of both cylinder blocks by means of two inlets and two outlets. This pump is driven entirely by the crankshaft, eliminating the necessity for driving gears.

The La Fayette cellular radiator, supported on the frame with a stiffening base of solid aluminum, is fitted with vertical shutters, which, without attention from the operator, control the air circulation under the hood and maintain the engine at the temperature required for the most efficient and economical operation. These shutters not only control the engine temperature, but are a substantial protection to the radiator and are distinctive in appearance.

This power of the engine is carried to the rear wheels through a transmission system remarkable for its reduction of friction. The unit power plant is set in the frame at such an angle that the power is transmitted in a straight line to the rear axle, and but one universal joint is needed. The universal joint, with its hardened steel bearings, is enclosed in an oiltight casing on the rear of the transmission, with automatic lubrication. A large tubular propeller shaft, completely enclosed in a torque tube, continues the power to the rear axle, while the rigid torque tube transmits the tractive effort of the rear wheels to the chassis.

Another exclusive La Fayette device is the brake equalizing differential mounted on the rear of the transmission case. It operates on the same principle as the rear axle differential, and, being enclosed and lubricated, insures positiveness and equality of brake operation on both rear wheels and in both sets of brakes. The result is the practical elimination of side skidding.

By the use of an aluminum alloy differential carrier and forgings instead of malleable iron castings, the La Fayette rear axle is unusually light and strong.

Due to the front axle design, the spring suspension and the curving of the frame, the centre of gravity is nearly a foot closer to the ground, yet ample clearance has been provided. The lowering of the load in this manner produces greater safety in driving, particularly in turning corners.

Here Is a Ford De Luxe

Of course the weather is fine! Note the newest type ventilating windshield and heavy plate glass sliding panels in the doors and side windows. And a happy group inside—five of them. This attractive Ford Sedan is electrically lighted and started and fitted with demountable rims with 3½ inch tires front and rear. It is inexpensive to buy and inexpensive to keep. With other Ford products it is on exhibition at the showrooms of the Ford Motor Company's New York branch, Broadway and 54th Street, and at the salesrooms of the authorized Ford dealers.

VELIE TRAVELS ON KEROSENE.

Internally Heated Vaporizer Makes Use of Cheaper Fuel Possible.

That kerosene will not be universally used as a motor fuel for some time is the judgment of automotive engineers who have conducted numerous tests with various makes of motor cars.

The engineers say kerosene is not practical fuel for the average car. It fouls the spark plugs, deposits too much carbon, has an offensive odor and on account of its slow burning lacks acceleration and snap. Motors equipped with an internally heated vaporizer like that of the Velie Six, however, will run successfully with kerosene.

A test run was made recently with a Velie Six which had a regular internally heated vaporizer and demonstrated the success of that apparatus. The car was piloted from Tacoma, Wash., through the Puyallup Valley and over a long scenic trail. The efficiency of the Velie vaporizer and its value as an aid to economy in ordinary service was well demonstrated on this trip.

BUSINESS NEEDED OVERHAUL.

Time Now to Look Work in Face, Says Apperson.

"A complete overhaul of business every so often is essential," said Edgar Apperson, president of the Apperson Brothers Automobile Company, in an interview yesterday.

"Our company, one of the oldest in the industry, has, of course, passed through, on two or three occasions, periods of depressed business conditions affecting all classes of business. Naturally we feel we can pretty nearly judge conditions prevailing during such a period and the ultimate results.

"What we are doing, and what every one should do, is to try to stabilize conditions. The first move in this direction fell upon the banks naturally, yet it seems that many feel the banks are working an injustice on all of us. This certainly is not true.

"What we all must do from now on is to look work squarely in the face and settle down to a definite period of sane expression rather than unsane explosion."

WEST RUSHES ROAD BUILDING.

J. I. Farley Says $140,000,000 Will Be Spent for Highways.

J. I. Farley, vice-president and sales manager of the Auburn Automobile Company, Auburn, Ind., has just returned from an extensive tour through the Western States. He comes back brimful of enthusiam and amazement at the energy with which the Westerners are pushing road building programmes for 1921.

"Preparations are under way," says Mr. Farley, "for the most extensive road building campaign ever planned. The States of California, Washington, Oregon, Utah, Nebraska, Colorado, Arizona and Wyoming have authorized a total appropriation of $140,000,000 for roads. It is estimated that at least 75 per cent. of this will be spent in 1921. The decrease in the price of building materials and the availability of labor makes it possible to proceed immediately with the road building project. By the end of 1921 the motoring public of the West will be the benefactors of a beautiful system of highways.

"The rest of the country may well profit by the example of the Westerners. The go ahead spirit that they display is just the thing needed in solving the present business situation. The one great thing that is needed is a true spirit of optimism, and the road building programme of the West is certainly an inspiring example. Let us all throw off our coats and get to work with the same vigor and determination."

MONROE RETAINS "4" MOTOR.

William Small Co. Produces Touring Car Roadster, Sedan and Coupe

The Monroe for 1921 is of the group that holds fast to the principle of the four cylinder motor. The 1921 models of the company, the touring, roadster, sedan and coupe, show no mechanical change in the Monroe chassis or motor.

The Monroe motor car is manufactured by the William Small Company of Indianapolis, which has its own motor plant, a distinct part of its factory assets.

"We believe the four cylinder motor, rightly designed and in a chassis of otherwise right design, is still the best bet in motor car architecture," said William Small, president of the company, who will lead his forces at New York and Chicago.

"The 1920 five hundred mile race at Indianapolis, won by Gaston Chevrolet in a Monroe, is proof that the four cylinder car, reenforced by other principles of correct engineering, is the car of durability. The victorious Monroe went the whole distance without a tire change or a lifting of the hood for a motor adjustment. The Monroe Special is, as its name infers, a specially built racing car, but it embodies many features of the Monroe stock car in engineering and was built in Monroe shops bp Monroe workmen and engineers."

AC PLUGS WON MANY VICTORIES IN 1920

Helped U. S. Set New Records in Air, Water and on Land.

By ALBERT CHAMPION,

President Champion Ignition Company, Flint, Mich.

As a result of epochal achievements scored during 1920, Uncle Sam is now supreme in two of the three spheres of travel—land and water—and can claim as his own two world's speed champions—Tommy Milton, who drove his sixteen cylinder Duesenberg over the Florida sands at a rate of 156 miles an hour, and Gar Wood, who piloted the international title holder, Miss America, through the waters of the Detroit River at an average of seventy-seven miles an hour.

France still rules the air by virtue of Sadi Lecointe's victory in the 1920 Gordon Bennett trophy race and the record flight of 194 miles per hour made by Bernard de Romanet. America, however, is not far behind her sister republic when it comes to humbling distance and time with an airplane, thanks to Lieut. C. C. Moseley, who won the Pulitzer cup and the American championship on Thanksgiving Day with the Verville-Packard and subsequently put the American speed record at 186 miles an hour.

In fact, were unofficial records the basis for awarding championships, Uncle Sam could boast of a supremacy in the air as well as upon the land and water, since Roland Rohlfs and the Texas Wild Cat are credited with a speed of 195 miles an hour in a practice flight before the Gordon Bennett cup classic.

Inasmuch as Milton, Wood, Lieut. Moseley and Rohlfs depended on AC spark plugs to fire the engines of their craft, we of the Champion Ignition Company look upon their achievements with a pride that is personal yet pardonable, for the plugs functioned perfectly in every instance and stood up admirably under the terrific punishment to which they were subjected.

Milton's record smashing drives on the beach at Daytona are an excellent example of the exacting tests to which AC plugs were put throughout the 1920 season and of the unfailing manner in which they served the foremost aviators, speed boat pilots and race drivers, including Ralph De Palma, Jimmy Murphy, Eddie Hearne, Roscoe Sarles and Andre Boillot.

During the 23.07 seconds that Milton was covering the mile straightaway, the sixteen plugs that fired his Duesenberg delivered a total of 9,870 sparks. Every second 428 jets of flame converted gasolene into smashing power. Yet no one cylinder missed. The plugs functioned with absolute precision.

Milton, incidentally, used AC plugs throughout the 1920 season. They rode with him when he established seven new world's records at Daytona. They participated in the four nonstop victories that he won out of a total of nine starts.

Gar Wood, the ace of speed boat pilots, had twenty-four AC plugs in the cylinder of the two Liberty engines that powered Miss America. With this invincible hydroplane, he invaded English waters and won the Harmsworth trophy, symbolic of the world's power boat championship, and then returned home to annex the Gold Cup in the Detroit River regatta and to establish a new world's speed record for power boats of 77 miles an hour.

While the most notable of the year, the achievements of Miss America were not the only marine victories in which AC plugs participated. AC equipped power boats also won the races held to decide the Canadian, Pacific coast and Great Lakes championships.

In the air, AC plugs proved just as dependable as on land and water. Our record in the Pulitzer cup race verifies such a statement, for of the first four planes to complete the 132-mile flight for the American airplane championship, three were AC equipped—Lieut. Moseley's victorious Verville-Packard, Capt. H. E. Hartney's Thomas Morse, which finished second, and the Orenco-Wrights, which was fourth.

KING IN NEW PLANT.

Policies and Executives Have Been Changed, but Not Car.

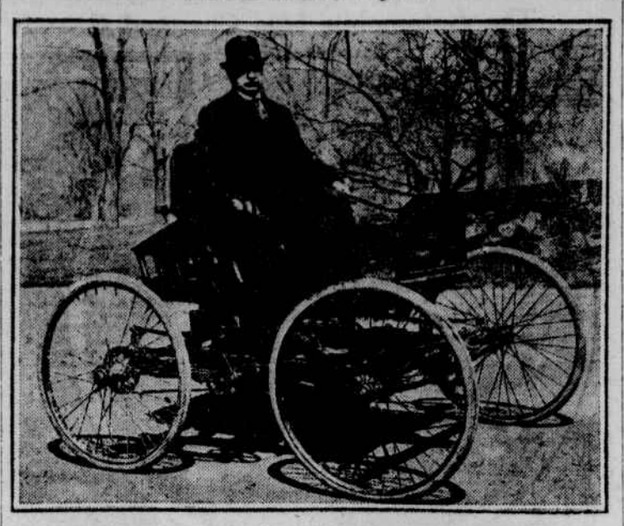
The King Motor Car Company has moved into its new plant on Conant avenue, Detroit, allowing it more manufacturing space and to concentrate its activities under one roof, instead of in three separate buildings as heretofore.

The company, according to an announcement by its new owners, will positively be operated as a going concern. No change in the construction of the eight cylinder chassis, which has made a reputation for the company, is contemplated. The only radical changes are the moving into a new and larger plant and placing new executives in charge of certain departments and the revamping of policies. It is the general opinion of other motor car executives in Detroit that the future of the company is assured as a result of the policies of the new owners.

Enthusiasm among King dealers and owners throughout the country has been manifest in telegrams and letters received by the new owners. Support has been pledged, and in many instances present King owners have sent in orders for new cars for spring delivery. A. Weber will be in charge as president and general manager, with S. J. Feldman of New York in charge of Eastern and export business.

The new owners, Charles A. Finnegan, A. Weber and Eugene Hofeller of Buffalo, N. Y., intend that every King owner will be satisfied with the policies they are outlining and that these policies will receive the heartfelt cooperation of all King dealers. The policies briefly contemplate the same good product at a fair price that will allow of an honest margin for factory and dealer, backed by a business service policy.

Not a 1921 Haynes



This car, with Elwood Haynes at the lever, is exhibited at the Smithsonian Institution. It was invented, designed and built by Mr. Haynes, who is president of the Haynes Automobile Company of Kokomo, in 1893.

SHOW VISITORS ARE OWNERS.

Nine Out of Ten Familiar With Cars, Says Bowman.

"A noticeable factor at the automobile show is that nine out of ten visitors are already owners, which changes the show from one of education to one of critical inspection," says Sidney B. Bowman, local Kissel distributer.

"At the shows in the past the majority of visitors had yet to buy their first car, which required displays and salesmanship from an educational or utility standpoint. Buyers then were not familiar with what they should expect of a car and therefore could not be expected to consider their purchase from a practical or technical standpoint.

"But to-day, with the prospect knowing how to operate and take care of his car, even repairing it himself, the show has become one of a display of exclusive features in chassis, motor and body.

"That the manufacturer realizes this new factor is seen by the way the 1921 cars have not only been designed and finished but equipped as well. For example, take the Kissel custom built models. The practical or critical owner was Kissel's ideal. He built the car to meet the demands of the present owner, equipping with all the features the owner from experience would expect to find on it."

1920 RECORD FRANKLIN YEAR.

Company Adds to Plant to Meet Demand for Cars.

H. H. Franklin, president of the Franklin Automobile Company, reports that 1920 eclipsed all previous years in the sale of Franklin cars, over 10,000 cars having been shipped during the year; 55,000 Franklin cars are now in service. During November the Syracuse factory has been turning out thirty cars a day, and on December 1 the schedule was increased to thirty-three cars daily. Sales for the first fifteen days of December averaged over forty per day.

Extensive additions to the plant have just been completed at an aggregate cost of over $2,000,000. These include a new manufacturing and storage building, erected at a cost of $1,000,000 and covering 363,000 square feet of floor space; a new heating and power plant costing $500,000 and a $100,000 addition to one of the manufacturing buildings. New equipment being added to the heat treating department at a cost of $400,000 when completed will make this one of the finest installations of its kind in the country. In addition a large plot of ground has been purchased adjacent to the factory. This is being used for storage of coal and other material.

Foreign sales have forged ahead rapidly, the end of the year showing an increase of 96 per cent. over 1919.

PRE-HEATING GAS BENEFITS MOTOR

Maxwell - Chalmers Device Means Economy and Long Life to Engine.

Maxwell-Chalmers engineers are distinctly pleased with the indorsement that has been given the principle of preheating motor fuel by the United States Bureau of Standards and the Society of Automotive Engineers.

The Chalmers device for pre-heating the fuel at the intake port was incorporated in the Chalmers motor three years ago, and more than a year ago it was made a part of the Maxwell.

Recently the United States Bureau of Standards conducted tests of gasolene with a view of ascertaining how preheating the fuel affected the efficiency of present day gasolene.

In its lengthy report this government department indorses the pre-heating principle by saying:

"The rate at which the engine will accelerate with a given mixture ratio, or carburetor setting, is markedly affected by the amount of heat supplied and its method of application. Within the limits of this work the greater the amount of heat supplied to the charge, and the higher the temperature at the intake port, the more rapidly the engine would accelerate."

This greater ease of acceleration, according to authorities, means better motor performance and greatly lessens fuel consumption.

A committee of the Society of Automotive Engineers conducted an extensive investigation along the same lines as the Bureau of Standards. This committee also indorsed the principle of preheating the fuel and declared that this practice results in the following:

Better combustion, with consequent decrease in fuel consumption.

A decrease in crankcase dilution by limiting the passage of unburned fuel past the pistons.

Reduction of carbon deposit.

Maintenance of the engine in such condition as to deliver higher power over longer periods between overhauls.

Improvement in the general performance of the engine as to sweet running and ability to accelerate smoothly and rapidly.

These are the very things that have been claimed for the preheating since it was first incorporated in the Chalmers motor.

It is further pointed out that the accomplishments here emphasized by the engineers result in greatly reducing maintenance charges and replacement costs by keeping the car out of the repair shop.